



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/538,540	06/11/2005	Shahram Mihan	LU 6084 (US)	4071
34872	7590	04/06/2006	EXAMINER	
BASELL USA INC. INTELLECTUAL PROPERTY 912 APPLETON ROAD ELKTON, MD 21921			LEE, RIP A	
			ART UNIT	PAPER NUMBER
			1713	

DATE MAILED: 04/06/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 10/538,540	Applicant(s) MIHAN ET AL.	
	Examiner Rip A. Lee	Art Unit 1713	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-15 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-15 is/are rejected.
- 7) ☒ Claim(s) 1, 4, 6, 9-11, 13 and 14 is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|--|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>12-07-2005</u> . | 6) <input type="checkbox"/> Other: ____ |

DETAILED ACTION

Claim Objections

1. Claims 1, 6, 11, 13, and 14 are objected to because of the following informalities: Please replace “molar mass distribution” with “molecular weight distribution” and delete “ M_n .” The symbol is understood in the art to mean number average molecular weight, not molar mass. Appropriate corrections are required.
2. Claim 4 is objected to because of the following informalities: Please replace the tradename, Crystaf[®], with “crystallization analysis fractionation (CRYSTAF)” or, if parent claim 1 has been amended as suggested in paragraph 4, see below, the tradename may simply be replaced with “CRYSTAF.” Appropriate correction is required.
3. Claim 9 is objected to because of the following informalities: Please replace “polymerized onto it” with “polymerized onto said catalyst system” as it is not entirely clear which material is the antecedent of the pronoun, “it.” Also, the mass ratio needs to be defined clearly. It appears that the mass ratio is that of catalyst system to polymer, but it could be mass ratio of inert support to polymer. Clarification is required.
4. Claim 10 is objected to because of the following informalities: Please select “polymerizing” or “copolymerizing.” Use of both words in the claim is superfluous. Appropriate correction is required.

Claim Rejections - 35 USC § 112

5. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

6. Claims 1-6 and 11-15 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. The claims describe a side chain branching property that is not elucidated sufficiently by the claim language, and therefore, the claim is rendered vague and indefinite. Qualification of the property by citing the source of or type of measurement from which the property is derived is suggested. For instance, one may insert "as determined by crystallization analysis fractionation (CRYSTAF)" or some similar phrase after the word "distribution."

Claim Rejections - 35 USC § 102

7. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claim Rejections - 35 USC § 103

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Art Unit: 1713

9. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

10. Claims 6-8 and 15 are rejected under 35 U.S.C. 102(b) as being anticipated by Wang (WO 01/92346).

Wang teaches a catalyst and use of the catalyst in a process of polymerizing ethylene and α -olefin (claims 7 and 12). The bridged complex, (2-pyridylmethyl)(Ind)CrCl₂ is representative (example 5).

11. Claim 9 is rejected under 35 U.S.C. 103(a) as being unpatentable over Wang in view of Welch *et al.* (U.S. 5,498,581).

Wang contemplates that inventive catalysts may be in the form of prepolymer (page 10, lines 22-29), but there is not teaching as to how this type of catalyst is made. Welch *et al.* teaches that 5-80 wt % of prepolymer relative to the mass of resulting prepolymerized solid catalyst system is a practical working range for transition metal catalyzed olefin polymerizations. It would have been obvious to one having ordinary skill in the art to use the amount taught by Welch *et al.* in making the prepolymer disclosed in Wang because this has been shown to produce useful catalysts, and consequently, the skilled artisan would have expected such an embodiment to work. The combination is obvious since both patents relate to olefin polymerization processes.

12. Claims 1, 2, 4, 13, and 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Stehling *et al.* (U.S. 5,382,630).

Stehling *et al.* teaches a film (molded sheet of 0.0005 inch thickness) comprising an ethylene copolymer comprising a 50/50 blend of HDPE and LLDPE which exhibits M_w/M_n of 2.4, a density of 0.9335 g/cm³, M_w of 76,500, and CDBI of 25 % (col. 12, lines 4 and 12-15; Table I). The reference is silent with respect to the branching properties, however, in view of the fact that all other properties are met, a reasonable basis exists to believe that the claimed material also exhibits the claimed branching properties. Since the PTO can not perform experiments, the burden is shifted to the Applicants to establish an unobviousness difference. *In re Best*, 562 F.2d 1252, 1255, 195 USPQ 430, 433 (CCPA 1977). *In re Spada*, 911 F.2d 705, 709, 15 USPQ2d 1655, 1658 (Fed. Cir. 1990). The patent does not disclose further blends, however, one of ordinary skill in the art would have found it obvious to use the material in a blend as this is routine practice in the art, and because Stehling *et al.* relates to making polymer blends.

13. Claims 6-8, 10-12, and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Mihan *et al.* (WO 01/12641).

Mihan *et al.* teaches a general catalyst system comprising (un)substituted monocyclopentadienyl chromium (III) complexes. The transition metal component has structure defined by structural components (I) and (II), as shown on page 6. One notes that the π -ligand has bridging group B and pendant moiety Z. The bridging group is of formula $L^2(R^{13})(R^{14})$ where L^2 is carbon or silicon. Z is a heterocyclic moiety, and page 8 shows that this is a 2-pyridyl or 8-quinolyl group, and substituted derivatives thereof are preferred (page 8, lines 45-47). Surprisingly, the examples of Mihan *et al.* do not show a single organometallic complex containing the requisite bridging group $L^2(R^{13})(R^{14})$, as disclosed in the body of the patent. There is disclosed the complexes (8-quinoliny)(Ind)CrCl₂ and (2-Me-8-quinoliny)(Me₄C₅)CrCl₂, in examples 8 and 10, where the quinoliny moiety is bound directly to the Cp ligand, but no bridging group exists in either complex (see experimental and supporting ¹H NMR data). Despite this, one of ordinary skill in the art would have found it obvious to follow the teachings of the disclosure and claims and make the corresponding bridged

Art Unit: 1713

derivatives of these compounds because this is the actual scope of the disclosure of the patent. Thus, one of ordinary skill in the art would have found it obvious to make $[L^2(R^{13})(R^{14})](8\text{-quinoliny})(\text{Ind})\text{CrCl}_2$ and $[L^2(R^{13})(R^{14})](2\text{-Me-8-quinoliny})(\text{Cp})\text{CrCl}_2$ and thereby arrive at the catalyst of the instant claims, and since the patent teaches use of catalysts in a process of polymerizing olefins, the skilled artisan also would have found it obvious to do likewise with the catalyst comprising the bridged derivative. One of ordinary skill in the art also would have found it obvious to arrive at the claimed process using a substituted 2-pyridyl analogue because Mihan *et al.* teaches such an embodiment (see page 8, structure in line 5, and discussion lines 45-47). Obviously, Mihan *et al.* does not show a polymer product derived from the catalysts claimed in the text, however, a reasonable basis exists to believe that the product would exhibit the properties recited in instant claim 11 because the catalyst disclosed by Mihan *et al.* and the polymerization process using the catalyst is essentially the same as that recited in the instant claims. Since the PTO can not perform experiments, the burden is shifted to the Applicants to establish an unobviousness difference. *In re Best*, 562 F.2d 1252, 1255, 195 USPQ 430, 433 (CCPA 1977). *In re Spada*, 911 F.2d 705, 709, 15 USPQ2d 1655, 1658 (Fed. Cir. 1990).

Information Disclosure Statement

14. U.S. Patent No. 5,625,016 to Shiffino *et al.* (page 1) was not considered because the patent has been withdrawn.


Art Unit: 1713

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Rip A. Lee whose telephone number is (571)272-1104. The examiner can be reached on Monday through Friday from 9:00 AM - 5:00 PM. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Wu, can be reached at (571)272-1114. The fax phone number for the organization where this application or proceeding is assigned is (571)273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <<http://pair-direct.uspto.gov>>. Should you have questions on the access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll free).

ral

March 29, 2006


DAVID W. WU
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 1700